



How Students Use and Learn from Digital Resources

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Why study anyone's use of digital resources?

- “If you build it they will come”
- Assumptions about students and their use of technology
- Assumptions about how people find things
- Growing role & promise of Open Educational Resources

A STUDY BEGINS ... A STUDY EVOLVES

Faculty Baseline:

Faculty use of Digital
Resources (2006)

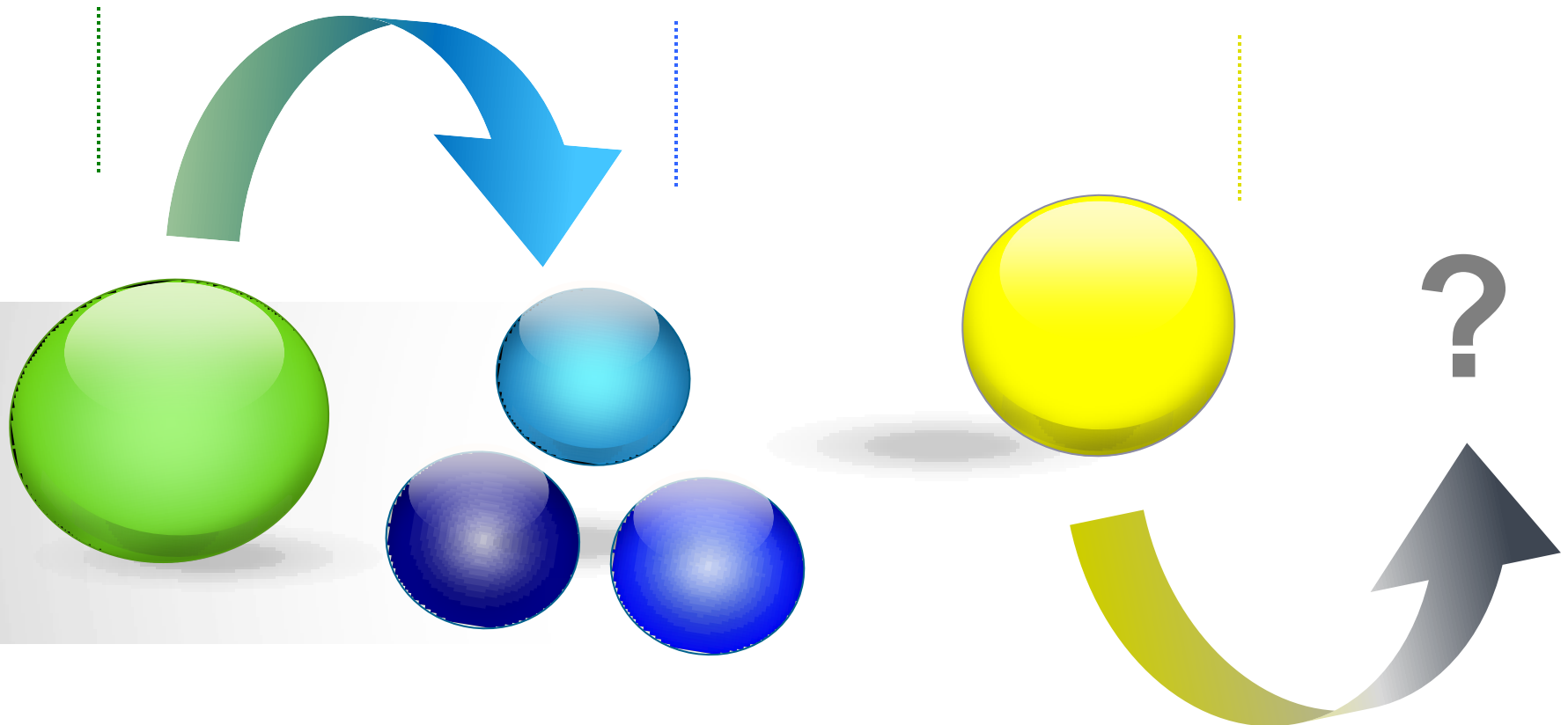


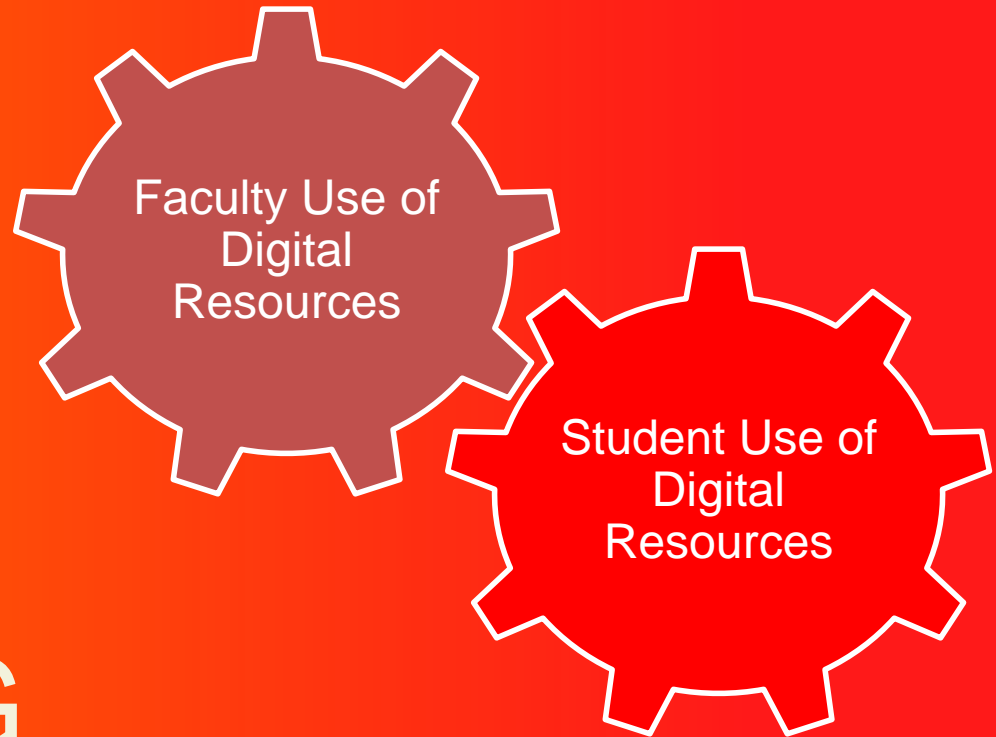
Faculty Studies in Context

Physics, Social Science,
Geoscience (2008-2011)



**General Student
Baseline (2012)**





SAMPLING

Community College Attendance Among Recent Recipients of Science, Engineering & Health BS & MS Degrees 2006 & 2007

Degree Level	Degree Recipients (No.)	Ever Attended Community College (%)
All Graduates	1,437,000	50.3
Bachelors	1,128,000	52.2
Masters	309,000	43.0

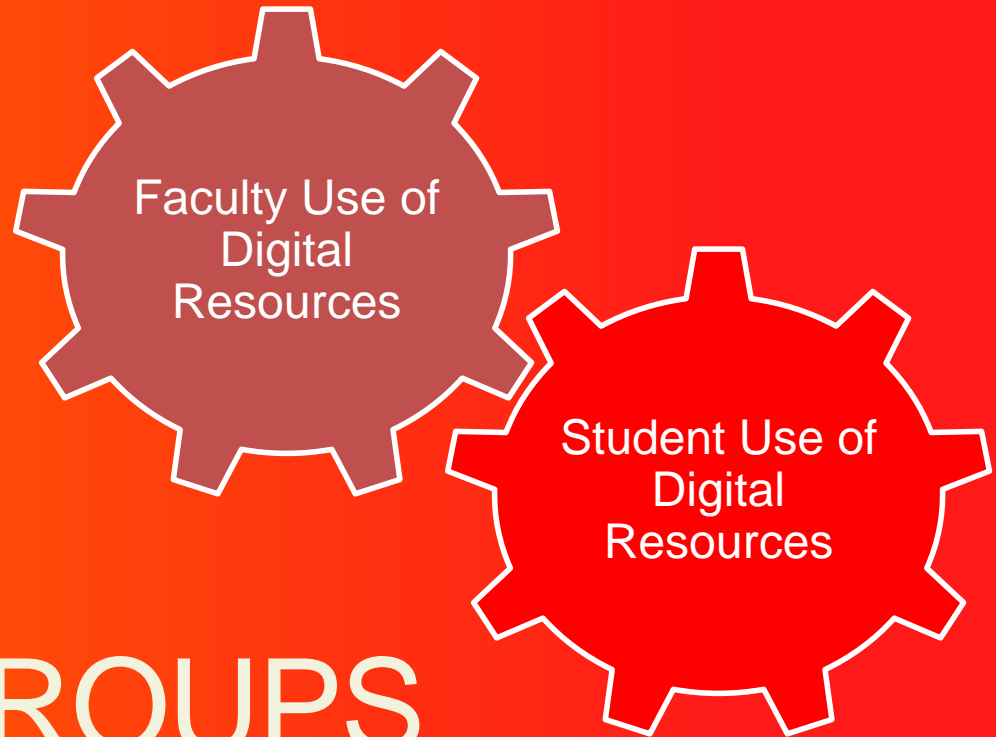
Source: National Science Foundation National Center for Science and Education Statistics, National Survey of Recent College Graduates 2008 in Geraldine M. Mooney and Daniel J. Foley 1011,

Community Colleges: Playing an Important Role in the Education of Science, Engineering, and Health Graduates

NSF 11-317 <http://www.nsf.gov/statistics/infbrief/nsf11317/>

Community College Attendance Among Recent Recipients of Science Engineering & Health BS & MS Degrees by Gender & Ethnicity

	Degree Recipients (No.)	Ever Attended Community College (%)
All Graduates	1,437,000	50.3
Gender		
Female	818,000	54.7
Male	619,000	44.4
Ethnicity		
American Indian/Native Am	3,000	71.8
Asian	217,000	44.3
Black	98,000	54.8
Hispanic	117,000	56.1
White	931,000	50.1
Other	70,000	53.3



FOCUS GROUPS

Starting With Focus Groups

Faculty (2006)

What did we know? ---Not much.

RQ1 - How do faculty use online materials in teaching?

RQ2 - How do materials align w/ faculty work patterns?

RQ3 - What makes online materials useful for teaching?

Students (2011)

What did we know? ---A little.

RQ1 - How do students use digital learning resources?

RQ2 - Why do students use these resources?

RQ3 - What is the impact of this use on students' learning?

RQ4 - What are the barriers to their use?



Focus Group Findings

Students (2011-2012)

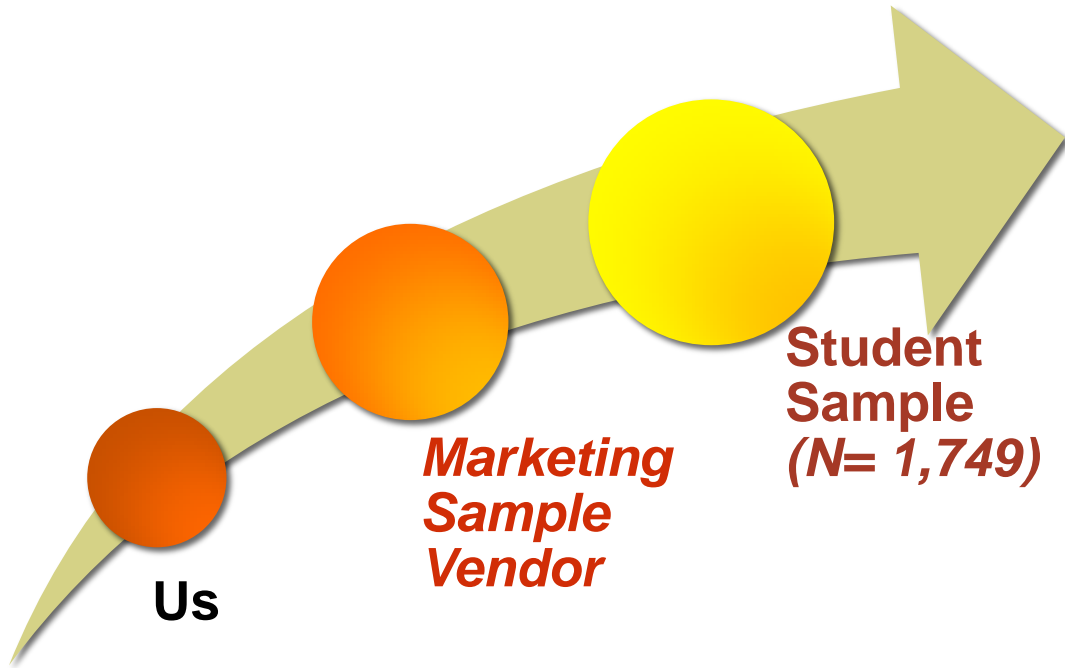
- **Very information literate (savvy)**
- **Used Web as supplement to class materials**
(text books still very important)
- **Social networking important, but most worked alone**
- **Iterative use of Wikipedia - Google - friends - textbooks**



SURVEY

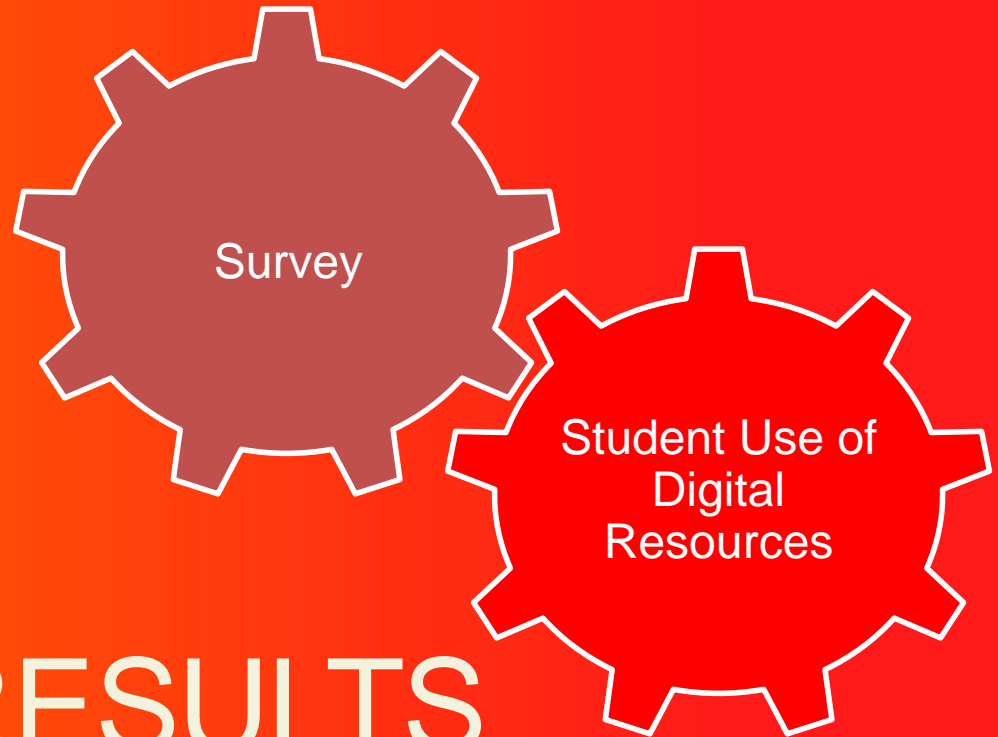


Survey Administration



Serendipity: We now have 3 useful groups to compare:

- 1) Current students (*full time part time, etc.*)
- 2) Past students / Alumni
- 3) Never students / Never went to college.



SURVEY RESULTS

Information Seeking Behavior Survey

- Seek out faculty and TAs
- Seek out friends
- Seek out a tutor or the learning center
- Post question on an Internet message board
- Text or IM friends
- Email experts not at your institution
- Consult textbooks

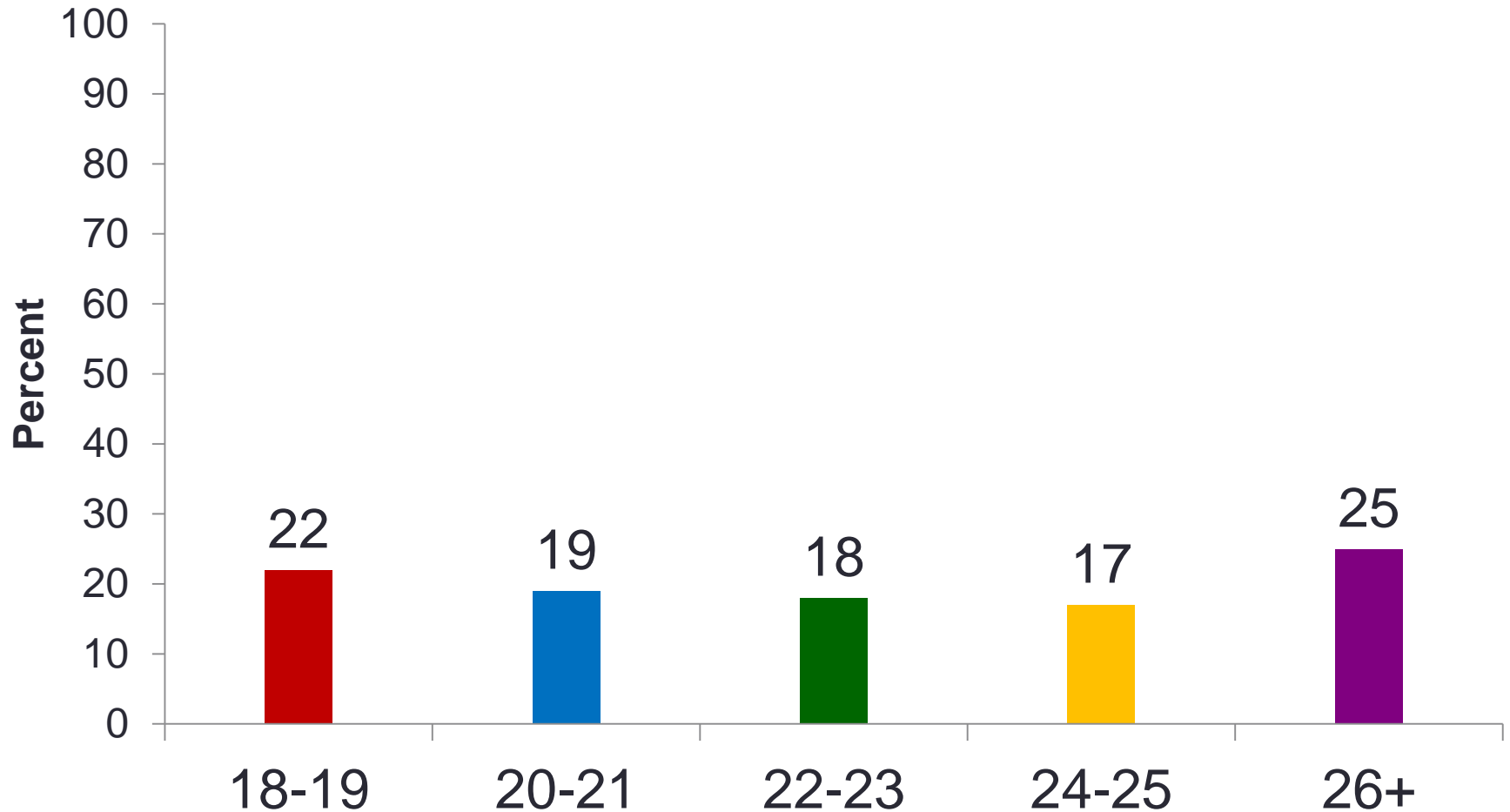
Information Seeking Behavior Survey

- Ask a librarian
- Consult supplemental readings
- View an online lecture
- Review relevant Wikipedia entries
- Review results from a Google search
- Use online library resources (e.g. online journals, e-reserves, or subject guides)

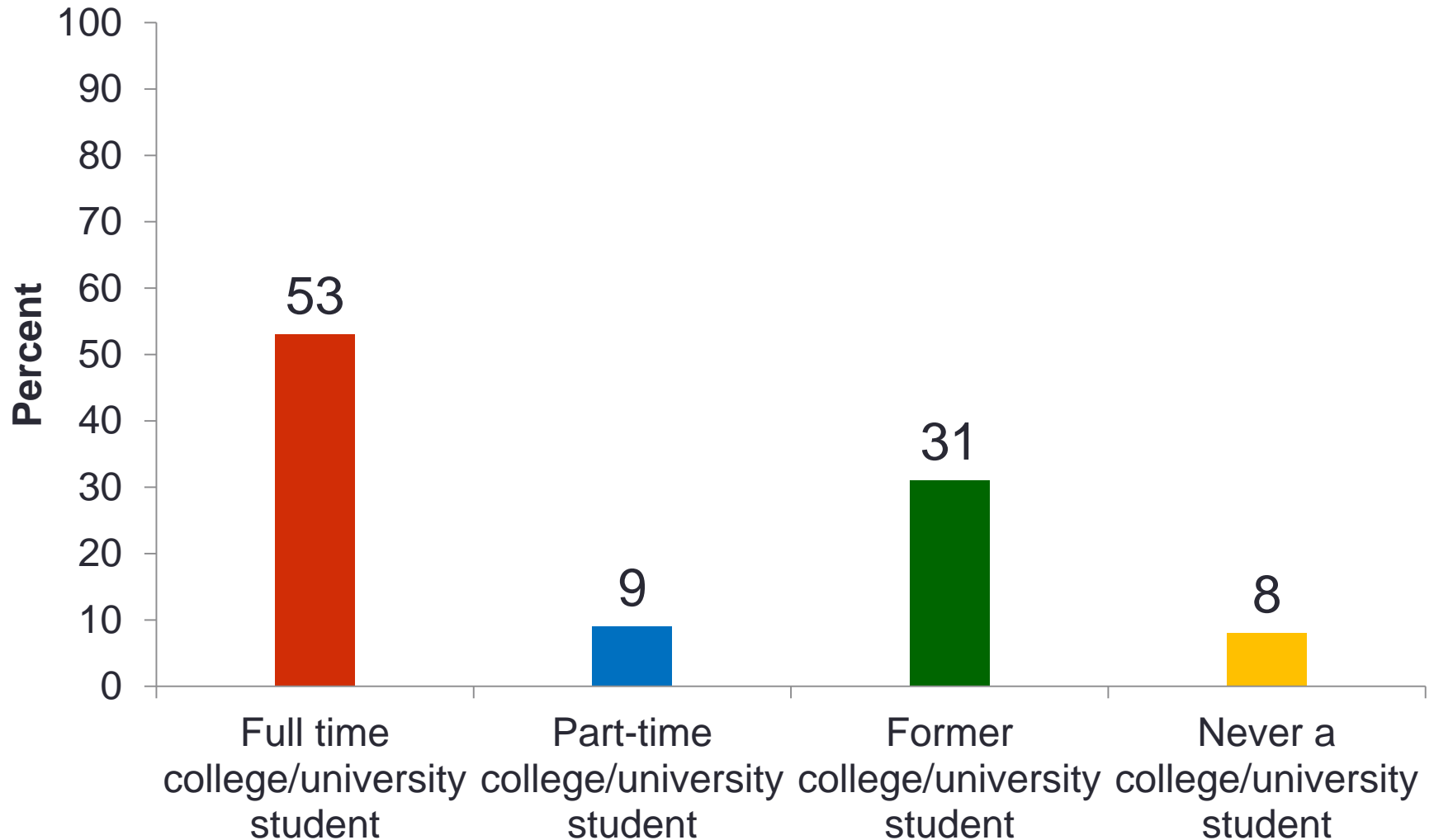
Some demographics...



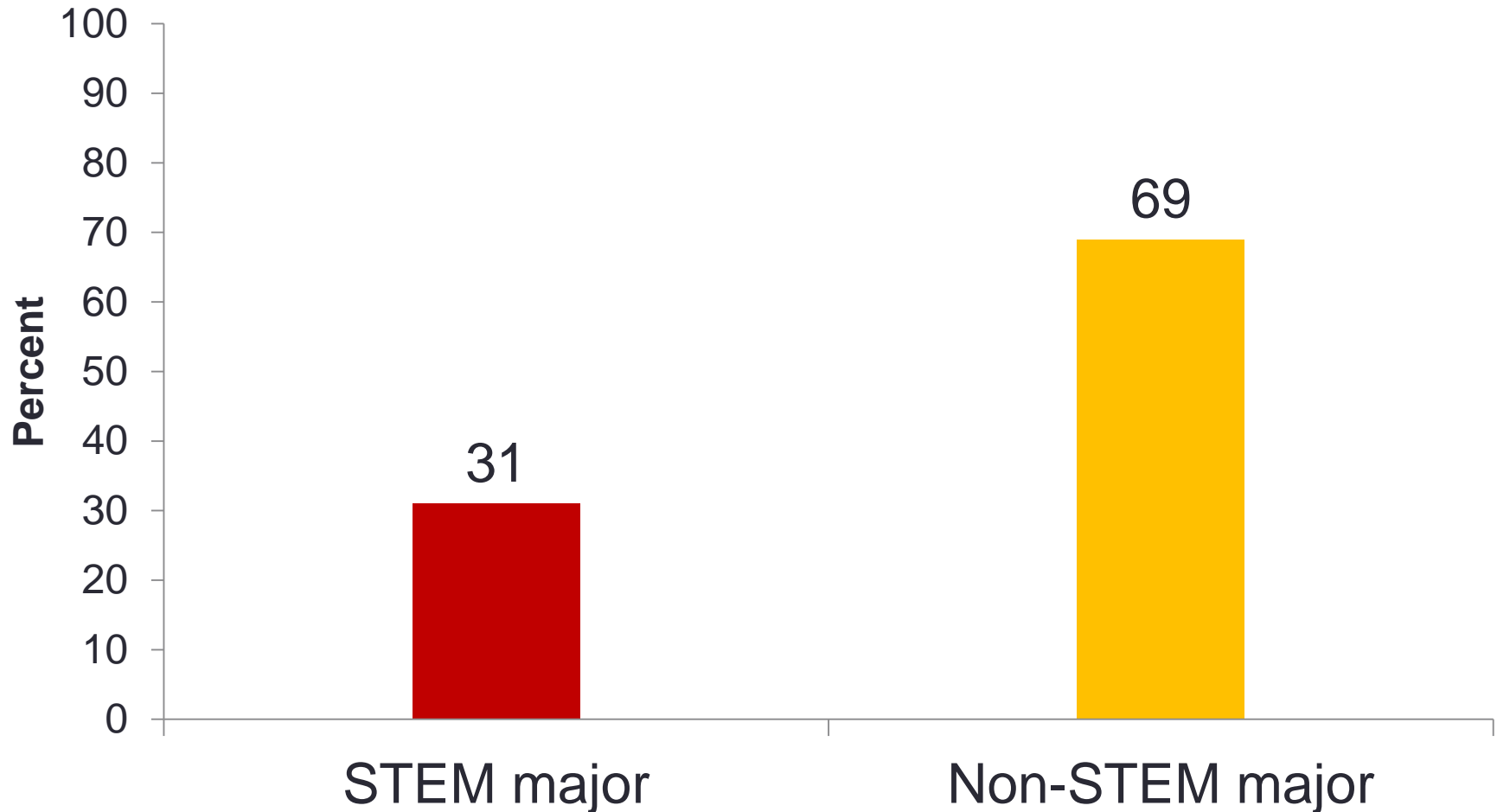
Age (n=1711)



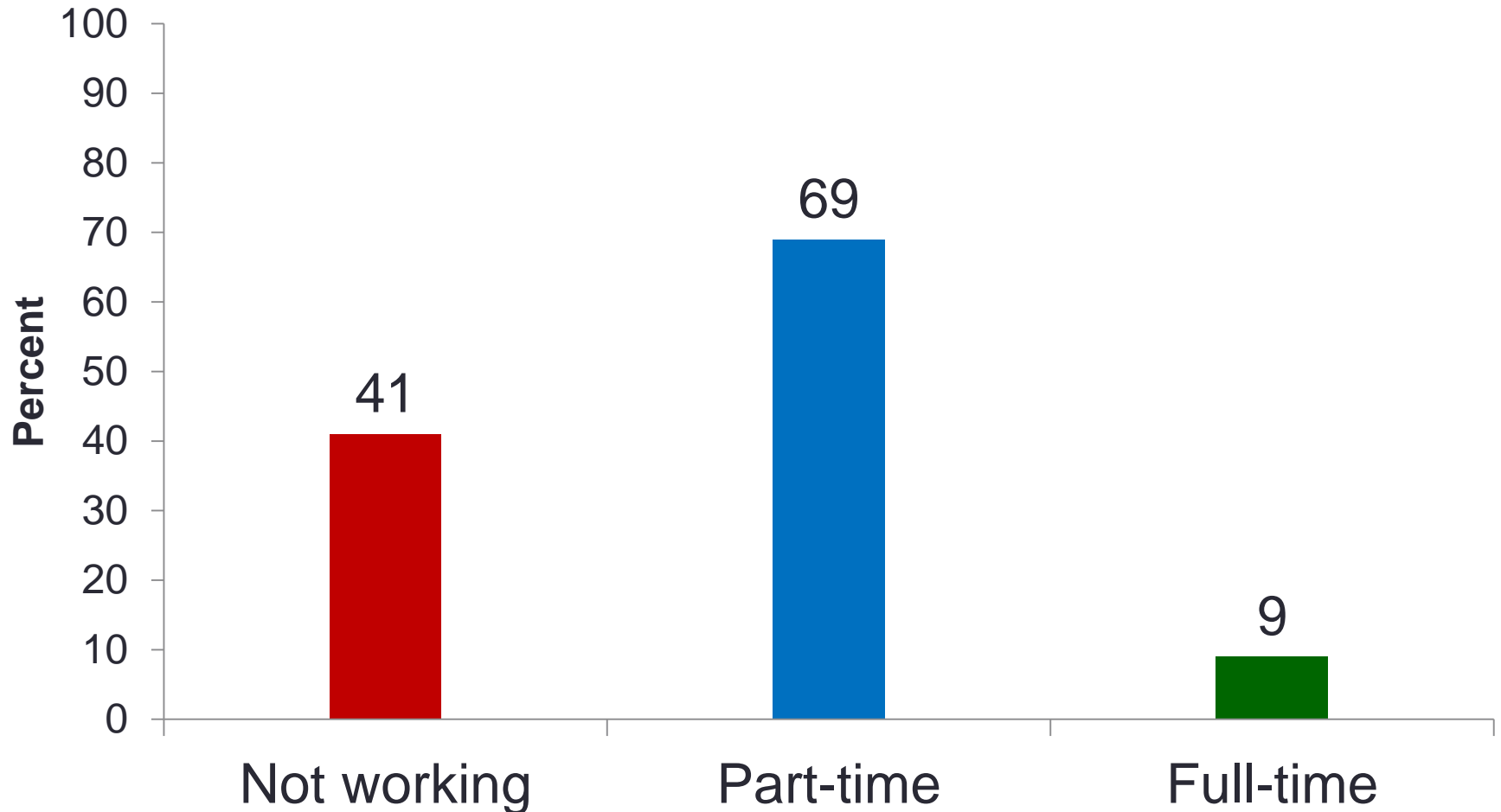
Student status (n=1740)



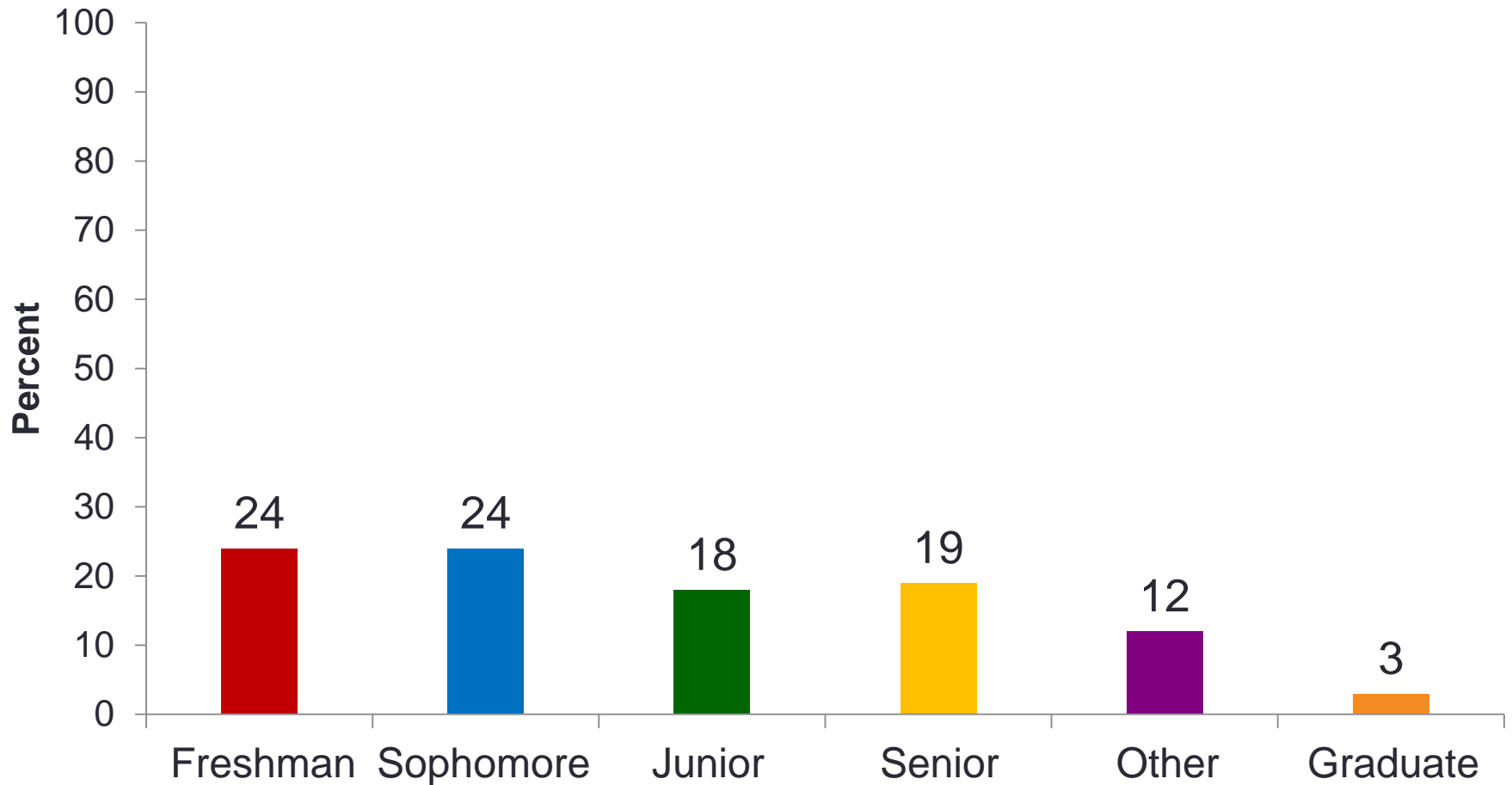
STEM/Non-STEM major (n=1564)



Employment (n=1043)



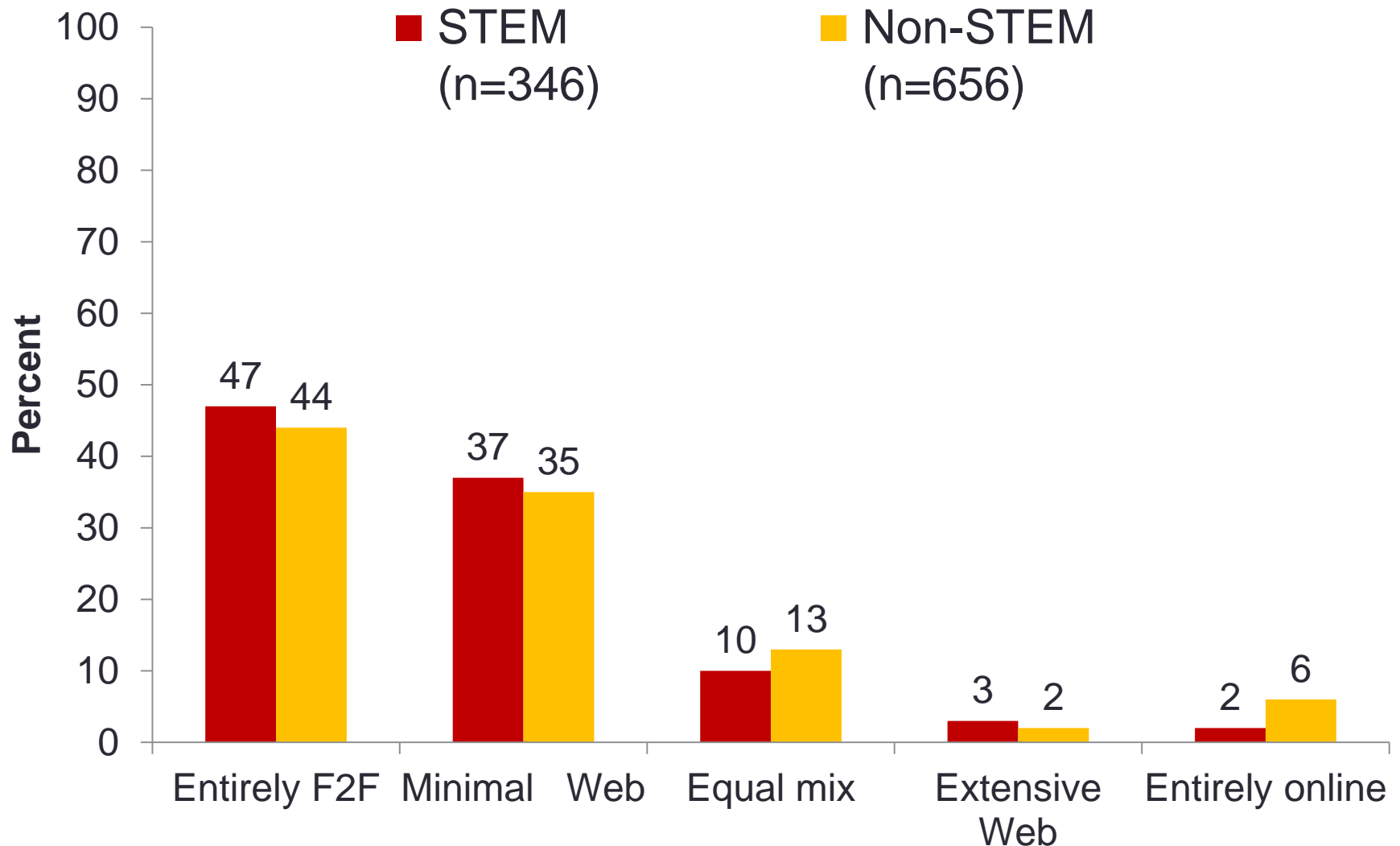
Academic standing (n=1041)



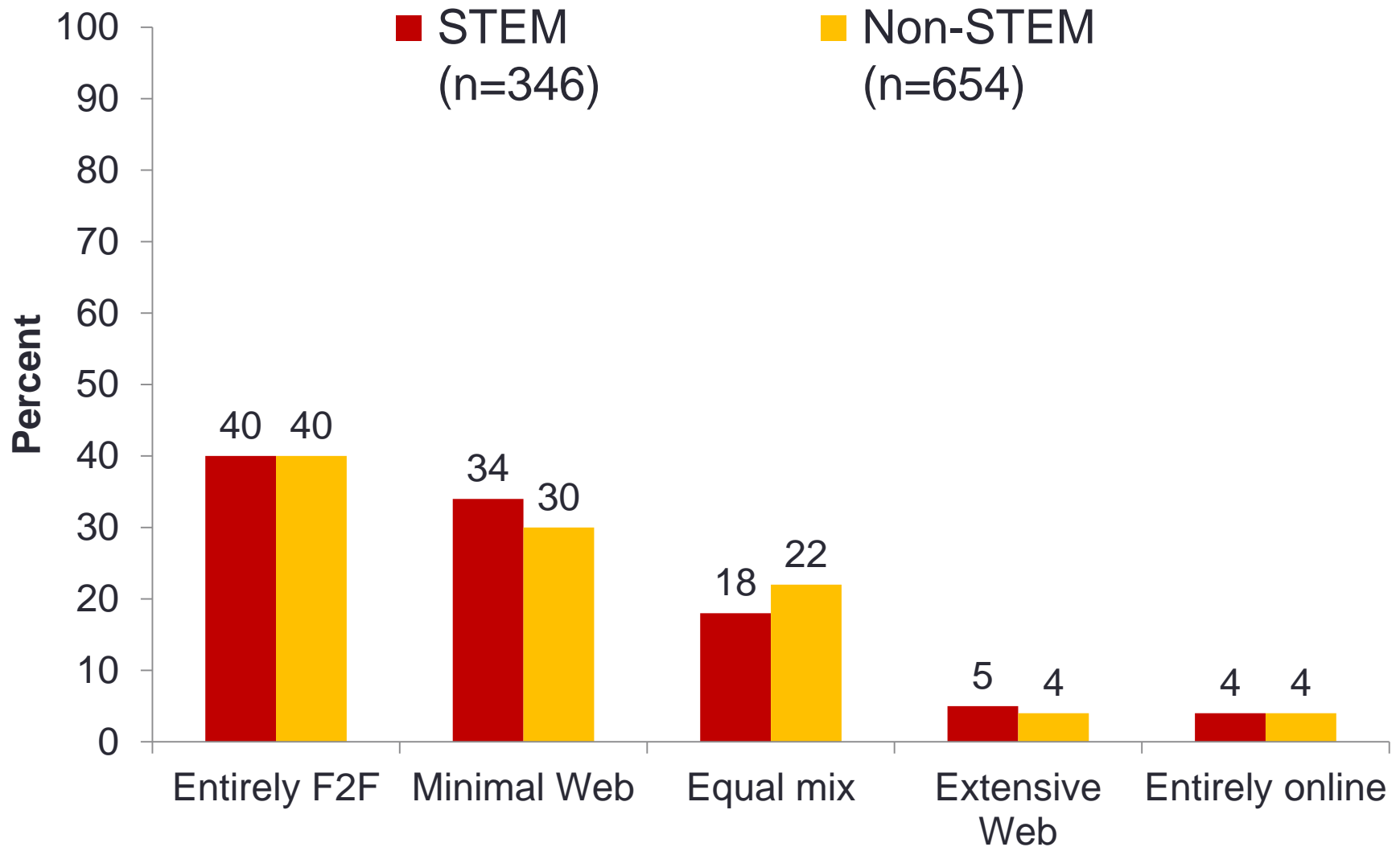
And some findings...



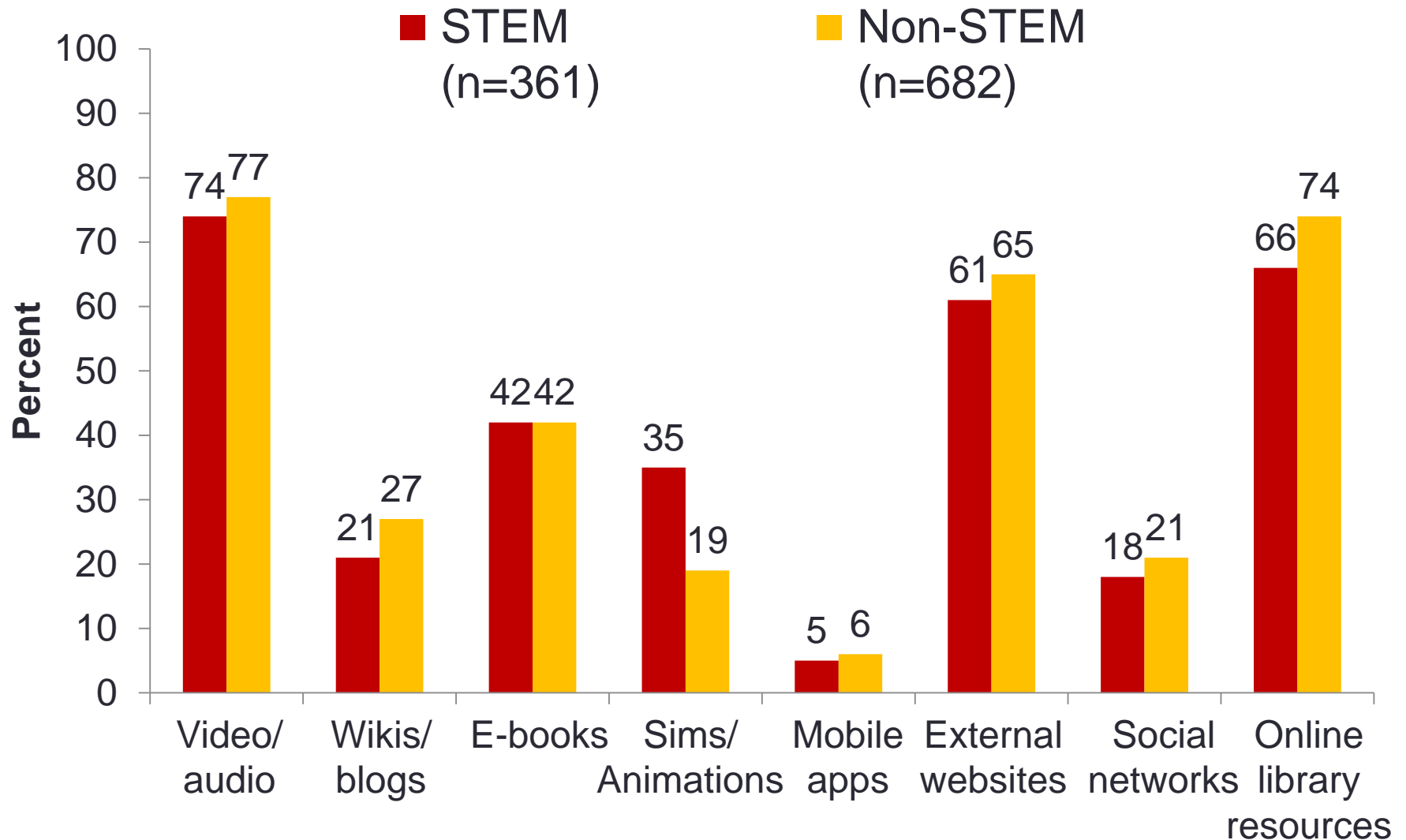
Most frequently taken course modalities



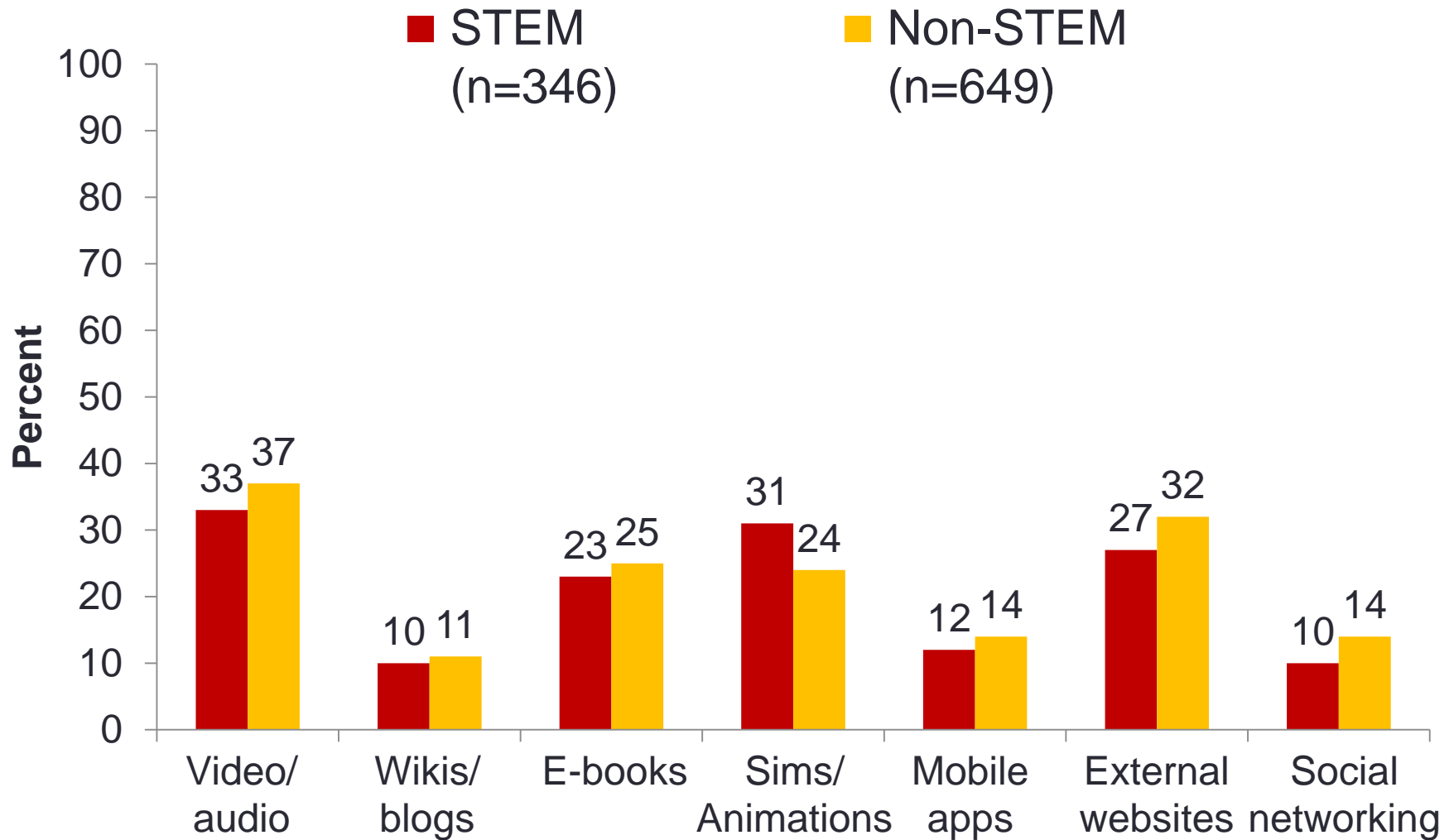
Preferred class modalities



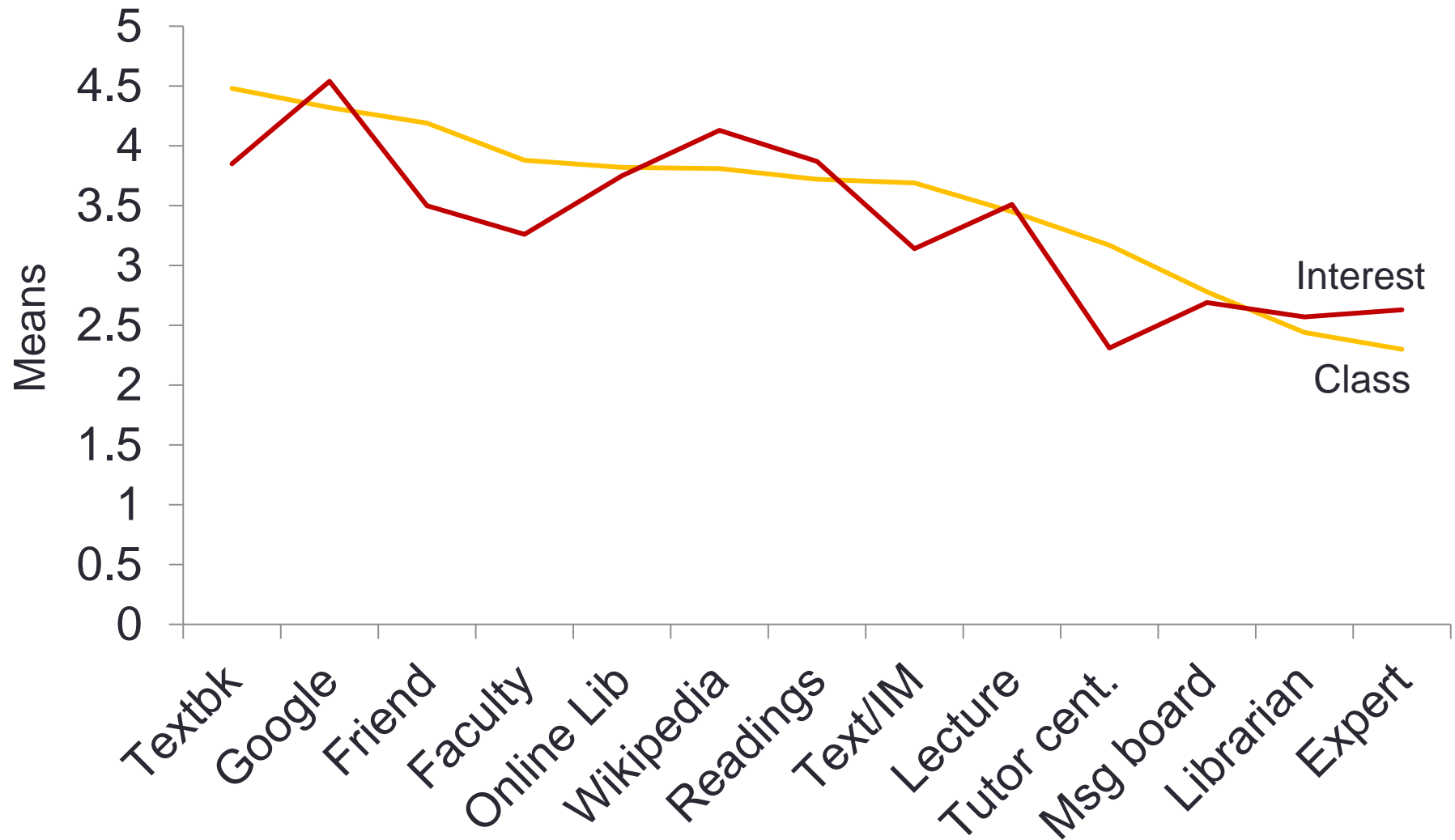
Technologies used in class



Technologies preferred frequently used in class



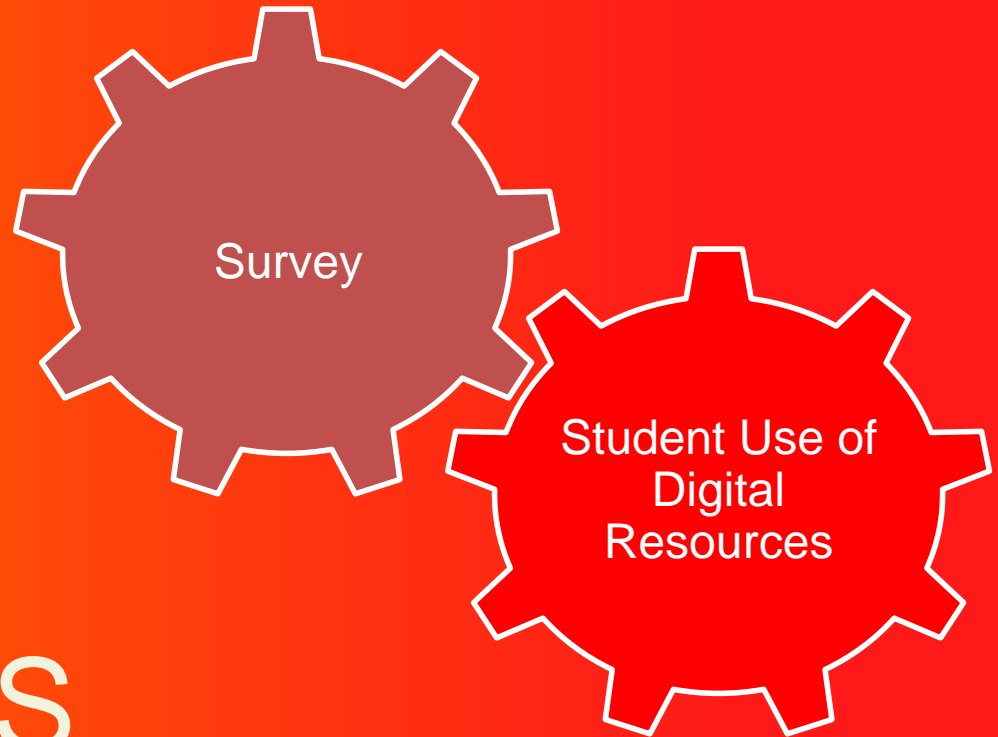
Student information seeking behavior: Class vs. Interest



Community college students compared to other student populations

How concerned are you about your ability to finance your college education?

	A two-year or community college	A four-year college or university	A trade or technical school	A comp. or research university
Extremely concerned	45.8%	29.6%	33.3%	23.7%
Very concerned	26.1%	22.2%	0.0%	19.1%
Somewhat concerned	19.7%	24.4%	33.3%	24.3%
A little concerned	4.9%	12.9%	16.7%	13.9%
Not concerned at all	3.5%	10.9%	16.7%	19.1%



PERSONAS

Student Personas



Ambivalent Learners

48% of Sample

This segment addresses learning problems using a plan (at least they *believe* that they have a plan). But, mostly, they do not feel strongly about their learning. They are confident in their ability to find information, but do not enjoy studying nor do they have a need to learn. This is the largest learner segment from the sample.



Adaptive Learners

26% of Sample

This segment exhibits a lot of characteristics of "ideal" learners (They solve problems with a plan, they are systematic, they set goals, they ask for help if they experience a problem, they enjoy studying and have a need to learn). A differentiator in this group is that there is more variance around setting specific times to study. For example, this could be a learner who studies in a hallway whenever they had some free time.



Free Form Learners

13% of Sample

This group is not systematic in their learning, and do not solve problems with plans. But they are willing to change what they do when presented with new information (may speak to an experiential type of learner). This group also feels like they have a need to learn, but are among the least likely to set aside specific time to study.



Time Sensitive Learners

11% of Sample

This segment is similar to the adaptive learners in many ways (use a plan, are systematic, etc), but they are just not quite as strong in these skills. Directionally they are identical to adaptive learners. The other key difference is that this group is the most likely to set specific times to study, and least likely to ask for assistance with a problem. This is also the smallest learner segment.

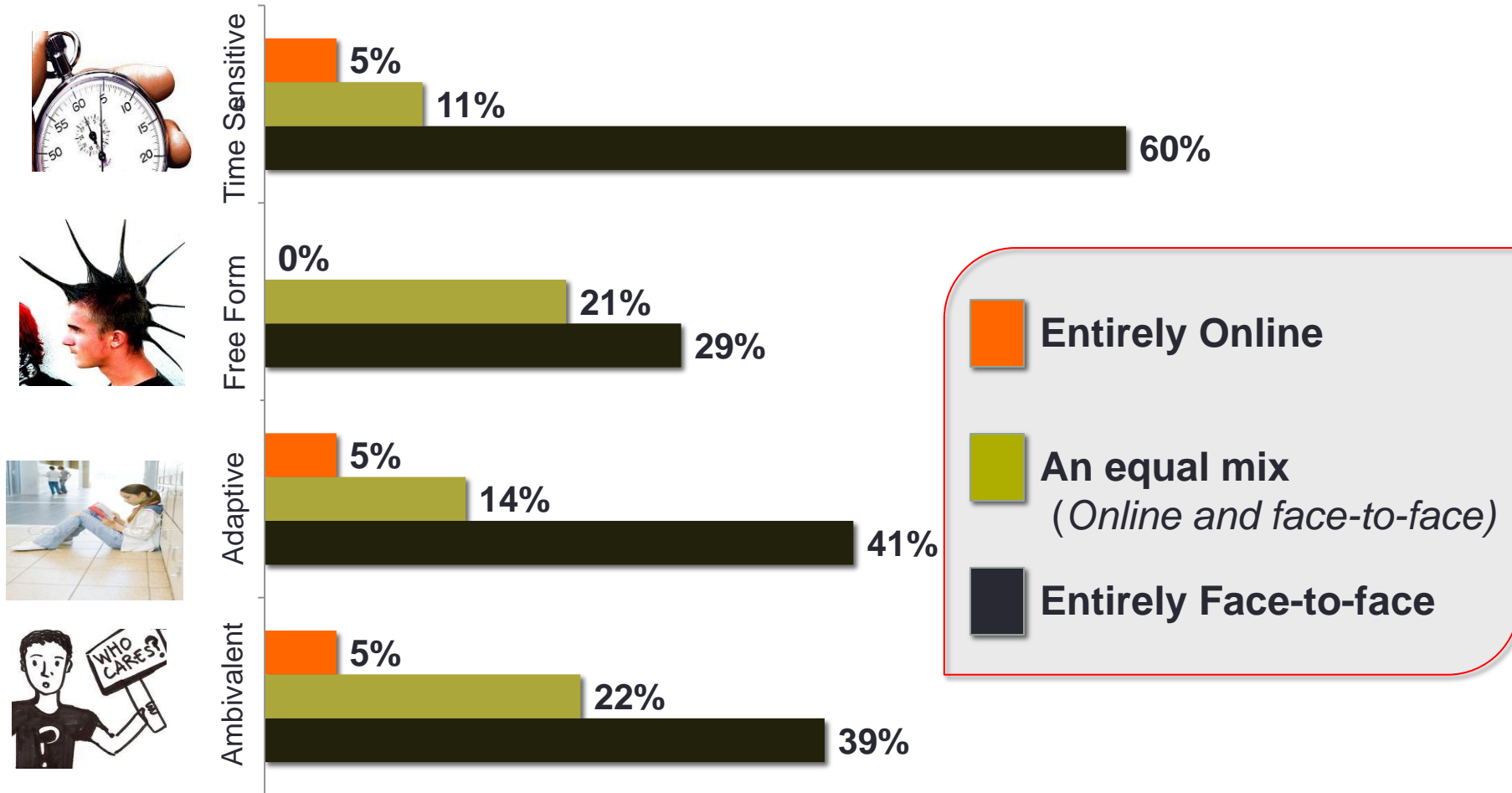
Persona Demographics



	Ambivalent Learners	Adaptive Learners	Free Form Learners	Time Sensitive Learners
-% full time student	54%	55%	39%	47%
-% former students	30%	33%	44%	33%
School/ Institution				
-2 year/ community college	13%	15%	21%	28%
-4 year college/ university	72%	57%	51%	55%
Race				
-% White/ Caucasian	74%	75%	73%	48%
Is / Was Major				
-Business, Marketing	17%	14%	17%	25%
-Humanities & Fine Arts	8%	11%	20%	8%
-Engineering	10%	13%	7%	10%

Personas And Blended Learning

% within each persona desiring...All face-to-face, half-and-half, or all online courses



Personas And Technology



	Ambivalent Learners	Adaptive Learners	Free Form Learners	Time Sensitive Learners
Wikipedia				
% using Wikipedia (for school or work)	56%	57%	62%	47%
Technology Preferences				
% wanting FREQUENT wiki or blog use in their classes	10%	13%	21%	26%
% wanting FREQUENT e-book or eText use in their classes	23%	40%	34%	45%
% wanting FREQUENT content from websites outside of campus used in their classes	24%	48%	53%	45%
% wanting FREQUENT social media (Facebook, Twitter, etc.) use in their classes	10%	18%	11%	32%

Personas, Support and Searching



	Ambivalent Learners	Adaptive Learners	Free Form Learners	Time Sensitive Learners
Class Difficulties				
% Very Likely to ask <i>FRIENDS</i> for help	46%	59%	45%	65%
% Very Likely to seek out a <i>TUTOR</i>	14%	18%	18%	54%
% Very Likely to seek out a <i>LIBRARIAN</i>	5%	17%	11%	42%
Resources/ Searching				
% <i>STRONGLY AGREE</i> : "I prefer sites where others have determined the reliability/ accuracy of content"	30%	47%	53%	78%
% <i>STRONGLY AGREE</i> : "I prefer searching for one large resource first when I do not know where to look"	24%	50%	42%	68%

Personas And Factors



	Ambivalent Learners	Adaptive Learners	Free Form Learners	Time Sensitive Learners
LEARNING FACTORS				
-Agency	48.7	51.8	49.2	53.6
-Preparedness	45.5	55.5	50.9	60.1
-Organization	47.2	54.9	46.0	59.8
-Engagement	46.5	53.4	51.8	58.6

We use the factors to explore the segments. Even our validated factors privilege time sensitive learners, and that may be OK. But, it is important to be mindful of how even objective measures can privilege one of these groups over another.

Where Do We Go Next?

- Follow-ups with the Ambivalent Learners
 - Who are they, ways that their ambivalence manifests itself etc
 - How can we help overcome the ambivalence
- Questions of all types of learners
 - More about the types of digital resources they use
 - The importance of brand
 - More on the importance of curation and personal geographies of learning
 - Use of resources in class and to help outside of class – what prompts it and how can we expand.

Implications of this Information

- We have a more nuanced view of the types of students we have
- Student preferences for technology use and course mode
- Expand our notion of digital fluency to include learning to learn
- Libraries
- Textbooks
- And that's just the beginning....

Questions and Comments

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Or one of the other researchers on the project

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And you gotta dance with them that brung
you

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